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17. Control Theory and Optimization

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Perov, Anatolii, Voronezh State University, Russia

Discrete matrix Lur'e equation (singular case).

Positivity, monotonity and concavity of Lur'e operator. Analitic property of Lur'e operator. S. G. Semenov's formula. Qualitative theory of Lur'e equation. The difference from orthogonal methods. Construction of the kernel of the stabilizing solution (when the solution is not known). Proof existence of stabilizing solution by the consecutive approachs method under the special choose of the cone. Therefore, the well known discrete frequency Kalman-Popov-Jacubovich theorem is proved by the consecutive approachs method.
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Reference: A. I. Perov, Discrete matrix Lur'e equation (regular case), Automatics and Telemechanics, 3 (1995), 21-29.